

## REMARKS

The Office Action mailed May 19, 2004 and the references cited therein have been carefully considered. Claim 1 has been amended in a sincere effort to further clarify that which Applicants regard as the invention.

Support for this Amendment is found generally within the specification, claims, and drawings, as originally filed. Specifically, support for the amendment to Claim 1 is provided at page 2, paragraphs 7 and 8; page 5, paragraphs 25 and 26; page 6, paragraphs 27-29; page 7, paragraphs 30 and 31; and page 8, paragraphs 32-35 of the specification.

Claims 1-3, 13, and 14 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,458,548 to Crossing et al. (*Crossing*). Claims 4 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Crossing*. Claims 1-12 and 14-19 were rejected as being unpatentable over U.S. Patent No. 6,345,197 to Fabrizio et al. (*Fabrizio*).

The present invention is directed to a carry-on heart rate monitor measuring a person's heart rate non-invasively. The heart rate monitor includes a display for displaying heart rate information about a heart rate signal measured on the person. The display includes a display element for displaying a settable minimum limit for a desired heart rate level, a display element for displaying a settable maximum limit for a desired heart rate level, and a display element unit controlled by the measured heart rate level provided with several display element segments.

At least one of the display element segments controlled by the measured heart rate level graphically represents the heart rate level by a position of the at least one display element segment relative to the display element for displaying the settable minimum limit for the desired heart rate level and the display element for displaying the settable maximum limit for the desired heart rate level, as defined by amended Claim 1.

As shown in Figures 1-4, *Crossing* is exclusively directed to a display that is securely integrated to a stable fitness device 22, 37, 41, and thus does not teach or suggest a carry-on heart rate monitor as defined by Claim 1. The *Crossing* device remains entirely motionless during use and can be viewed as long as the user wishes without interfering with the user's motion during exercise. However, the subject invention, as defined by Claim 1, is a carry-on or personal heart rate monitor, which permits a substantial amount of information to be transferred during short glances. This is required since the user is not afforded the luxury of being able to stare at a display for long periods of time without disrupting his ability to move during exercise, as disclosed at page 1, paragraph 1; page 2, paragraphs 7 and 8; page 3, paragraphs 16-18; and page 4, paragraphs 20-22; and Figures 1-3.

Further, Figure 8 in *Crossing* merely shows a numeric display of the actual heart rate, which happens to be located between separate numeric displays for the minimum and maximum heart rates, without any disclosure of a purpose, criticality, or unexpected result caused by such a placement. Thus, nothing in *Crossing* would teach or suggest a graphical representation or illustration of the height or level of the current heart rate relative to the minimum and maximum limits of the desired heart rate level, as defined by amended Claim 1 and disclosed at page 2, paragraph 8; page 5, paragraphs 23-26 and Figures 4-6 of the specification.

This is achieved in the present invention by a novel manner of placing a display element unit 210, and its segments 211 to 220, with respect to a display element 201, which indicates a desired minimum limit for the heart rate, and a display element 202, which indicates a desired maximum limit for the heart rate, to illustrate the position of the current heart rate level relative to these limits, as disclosed at page 5, paragraph 26 of the specification. *Crossing* merely describes a numeric display, which performs the same function as the display 500 shown in Figures 4-6 of the subject application, rather than a

graphical display with which the user can more easily visualize the position of his current heart rate relative to minimum and maximum limits, as defined by Claim 1.

Further, it is maintained that the location of the numeric element 120 in *Crossing* does not change its position relative to the elements indicating the minimum 104 and maximum 130 heart rate limits, as defined by Claim 1. A user's heart rate is normally between 30 and 220 beats per minute. *Crossing* does not disclose that digits in its numeric display are deactivated when not in use. For all the reader knows, the *Crossing* display could use leading and/or trailing zeroes and/or some other symbol to indicate inactivity.

Even if it is assumed that this is not the case, there is only one point (between 99 and 100) at which the third digit of the numeric display in *Crossing* may appear or disappear from the display. However, this results in a display that is absurdly inaccurate. In addition, the vast majority of users are not interested in heart rate levels during exercise that use only two digits (below 100), which would also render the change between two and three digits irrelevant.

Further, regardless of the change in actual heart rate, the right hand side of the numeric display in *Crossing* remains the same and is thus inoperable for illustrating tendencies towards the minimum heart rate level. Thus, using the mere appearance or disappearance of the third digit in the numeric display of *Crossing* to represent the measured heart rate level by a position of a least one display element segment relative to minimum and maximum display elements is ultimately inoperable to the ordinary user, and thus borders on the absurd.

Likewise, *Fabrizio* teaches only a numeric display, which does not provide a representation of the actual heart rate relative to minimum and maximum heart rate levels since each of these displays occupies the exact same location, albeit at different times. Thus, when viewing the actual heart rate in *Fabrizio*, the user cannot be provided with a

representation of the actual heart rate relative to the maximum or minimum heart rate limits, as defined by Claim 1. As indicated above, representing the relationship between the current heart rate and its limits as a function of position relative to these limits significantly reduces the amount of cognitive thought, which is substantially reduced during strenuous activity or exercise, required for comprehension by the user when compared with the purely numeric displays shown in *Crossing* or *Fabrizio*.

The Office Action indicates that *Fabrizio* fails to disclose a display element for displaying a settable minimum limit being located at a first end of the display element unit and a display element for displaying a settable maximum limit being located at a second end of the display element unit. However, the Office Action states that it would have been obvious to modify the device in *Fabrizio* to include this feature since the Applicant did not disclose criticality and/or unexpected results of this feature, and it appears that the invention would perform equally well with any display element unit, such as that described in *Fabrizio*.

Applicants respectfully disagree with the contention that the invention would perform equally well with any type of display unit. By incorporating at least one display element segment that represents the actual heart rate level by its position relative to a display element for displaying a settable minimum limit and a display element for displaying a settable maximum limit, the monitor is able to provide an illustration of heart rate that is substantially faster and easier to comprehend during exercise than either of the numeric displays described in *Crossing* or *Fabrizio*, as well as any of the conventional alternatives currently available. This is particularly true when the user can only glance quickly at the monitor or there is movement between the user's eye and the display, which typically occur during exercise, as disclosed at page 1, paragraph 4, and page 2, paragraphs 7 and 8 of the specification.

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Applicants respectfully note that in order to support a claim of *prima facie* anticipation, a single reference must teach or enable each of the claimed elements as arranged in the claim interpreted by one of ordinary skill in the art. Further, in order to support a claim of *prima facie* obviousness, the cited references must teach or suggest each and every element of the invention, and there must be a motivation in the references or the prior art to combine the references and the prior art as suggested.

However, nothing in the art of record would teach or suggest, either alone or in combination, a carry-on heart rate monitor that measures a person's heart rate non-invasively, wherein at least one of the display element segments controlled by the measured heart rate level graphically represents the heart rate level by a position of the at least one display element segment relative to the display element for displaying the settable minimum limit for the desired heart rate level and the display element for displaying the settable maximum limit for the desired heart rate level, as defined by amended Claim 1.

Applicants respectfully submit that Claims 2-19, which ultimately depend from Claim 1, are patentable over the art of record by virtue of their dependency from Claim 1. Further, Applicants submit that Claims 2-19 define patentable subject matter in their own right. Therefore, it is respectfully requested that the rejection of Claims 1-3, 13, and 14 under 35 U.S.C. § 102(b) and the rejection of Claims 1-12 and 14-19 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

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In view of the foregoing Amendment and remarks, entry of the amendments to Claim 1; favorable consideration of Claim 1, as amended; favorable reconsideration of Claims 2-19; and allowance of pending Claims 1-19 are respectfully and earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Rod S. Turner", is written over a horizontal line.

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